

# U.S. Dairy Forage Research Center - Annual Field Operations Report

## January 1998

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The 1997 growing season began with cold temperatures. This is the third year in a row that the growing season started with cooler than normal temperatures. The first crop of alfalfa grew at a very slow rate which adversely affected first crop yields. Very little winter injury occurred to alfalfa plants and all stands were good to excellent this past season. The temperatures for most of the growing season were below normal and clouds covered the sky during much of August. Accumulated growing degree days were well below normal and corn developed at a slow pace. Fortunately, frost held off and above normal temperatures in September and October allowed most corn in the area to reach or nearly reach the black layer stage of maturity. But most corn had moisture levels higher than typically seen at harvest. Rainfall in April and May were below normal. This allowed us to get an early start on planting. Rainfall recorded at the farm entrance rain gauge in inches was 1.4 in April, 1.26 in May, 3.33 in June, 7.74 in July, 3.63 in August, 1.27 in September, 1.62 in October and 0.6 in November. The precipitation in December was equivalent to .66 inches of rain. We planted 60 acres of barley, 204 acres of soybeans, 396 acres of corn, 78 acres of spring and 46 acres of summer seeded alfalfa and 14 acres of summer seeded red clover. The prior year seedings of alfalfa totaled 292 acres. Barley planting started on 4 April and was completed on 18 April. All barley was no-till planted at 110 pounds per acre into soybean stubble with a John Deere 750 no-till drill. We spread about 9,000 gallons per acre of liquid manure on all barley fields. We no-till seeded 19 acres of alfalfa at 10 lbs per acre on 20 April. This seeding followed corn harvested as silage and was spread with 15,000 gallons per acre of liquid manure. A second field of alfalfa (60 acres) was seeded following minimum tillage to prepare a seedbed needed for equipment travel. Both methods produced excellent stands of alfalfa. In mid August we no-tilled seeded alfalfa and red clover into harvested barley fields. We planted corn at about 33,500 seeds per acre for grain and at 40,000 seeds per acre for corn

silage. About 15 acres of grass sod were planted to corn following conventional tillage, 40 acres of heavily manured corn residue were planted following one pass with a disk and 341 acres were planted with little or no-tillage. Some fields were rotary hoed and others were tilled with an aerway implement to improve surface drying of soils. We applied 10,000 to 18,000 gallons of liquid manure to most corn ground. All corn received 85 pounds per acre of 5-14-42 starter fertilizer and 160 pounds per acre of nitrogen (N) from a combination of soybean, alfalfa and manure credits and surface applied 28% liquid N. We no-till seeded soybeans in 7.5 in rows at about 225,000 seeds per acre from 6 to 16 May.

Early planting and cool growing temperatures produced barley yields that averaged 86 bushels per acre and ranged from 85.6 to 87.4 bushels per acre. We harvested barley from 22 to 29 July and stored part of it as high moisture grain and part was sold to the Arlington research farm. Soybeans produced an average yield of 56.7 bushels per acre with a range of 42.7 to 63.7 bushels per acre. The total harvest of soybeans was 11,571 bu. Soybean harvest occurred from 3 to 15 October. In spite of the cool weather, soybeans grew very well this season. Weed control was excellent in most fields. White mold was present in all soybean fields; however, it was less severe than in 1996. It was estimated that yields were reduced 3 to 7% as a result of white mold.

About 2,213 wet tons of corn silage were harvested from 92.3 acres between 25 September and 8 October. Yields ranged from 5.6 to 7.6 tons of dry matter (DM) per acre and averaged 7.2 tons of DM per acre. We harvested about 250 tons of wet corn silage with a chopper equipped with a kernel processor. We harvested approximately 162.2 acres of high moisture ground ear corn (HMGE), 61.4 acres of HMG shelled (S) corn, and 80.4 of SC from 17 October to 19 November. The shelled corn (85% DM) equivalent yields averaged 170.4 bushels per

acre and ranged from 139.8 to 186.4 bushels per acre. The total amount of HMGEC harvested was 1,011 tons adjusted to 29% moisture content. The total amount of HMGSC harvested was 351 tons adjusted to 29% moisture content. First crop alfalfa yields ranged from 1.85 to 2.3 tons DM per acre. The second crop yields were estimated at 1.3 tons DM per acre and third crop yields were estimated at 1.2 tons DM per acre. Total seasonal yield on established fields was estimated at between 4.3 and 4.5 tons of DM per acre. In early July and mid August, we had very severe lightning that damaged our drive over scale, so accurate weights were not available on most of the second and some of the third crops of alfalfa. All alfalfa was harvested three times this past season. The first cut started on 6 June and the last cut was made on 27 August.

We have received final approval for the close out of the fuel oil contamination located behind the milk house. Because this area has an impermeable clay layer that prevents any downward movement and because of the relatively small amount of contamination, the site requires no additional remediation.

The August lightning that damaged our drive-over scale also did major damage to our electronic gate at the Badger Army Ammunition Plant. We are planning on replacing this system with an intercom gate-opening system. This system should be less susceptible to lightning. The Secretary of the Army is currently deciding the future of the BAAP. We have been told by Dave Fordham, Commander's Representative at BAAP that it is likely that the BAAP will be declared

excess. If this occurs, the land and facilities of BAAP will be turned over to GSA for relocation of these lands and facilities for use by other agencies and the private sector. As a federal agency, USDA-ARS would have a priority for lands and facilities currently used by or needed by U.S. Dairy Forage Research Center programs. The current permit for use of BAAP land expires in February 1999. We are currently working to re-establish these permits.

As part of the new pasture cattle housing facility, a concrete manure collection pad with retaining bump walls was constructed. A new cooperative project was initiated this year with the U.S. Geologic Survey and the Wisconsin Department of Natural Resources. As part of this project, three mini watersheds were identified in our pasture. These watersheds were equipped with flumes, weirs and automated sampling devices to collect runoff from these pastures. Electric lines were installed underground to the three collection locations. As part of this project, a water line and cattle waterers also were installed. Part of this project will involve outwintering of cattle and their impact on the environment. This installation adds a unique dimension to the facilities and research capabilities of the USDFRC.

The vacant Ag Project Supervisor position has been evaluated this past season and will be re-filled as soon as possible.

I want to again express my appreciation to all employees at the research farm for their efforts and accomplishments this past year. They have much to be proud of.